

## VA FILTRATION SMOKE TAIN BULLETIN – AUGUST 2020

**VA Filtration** offers a brand-new process for the reduction of smoke taint from wine (ARC Process), reducing not only the free taint creating the smoke aromatics, but also the markers for the bound taint from affected wine, potentially eliminating the “rebound” effect.

VA Filtration currently holds US Patents\* for free taint removal, as well as the nanofiltration-based processing of VA reduction. VA Filtration’s most recently developed three-pronged ARC Process has been operational since the start of 2020 and has been tracking for bounce back of taint in the wine treated to date. Currently, we have not seen any return of the taint. Using a combination of proprietary MWCO membrane elements and adsorption columns, the process can reduce the glycosides significantly per filtration pass. The following example analysis of a heavily tainted Syrah from 2017 Mendocino fires processed using the ARC Process indicates the new level of reduction achieved *in two passes* through the system (analytical analysis performed by the AWRI):

Compound	Before (ug/l)	After (ug/l)
4-Methylguaiacol	3	<1
Guaiacol	21	6
o-Cresol	1	<1
p-Cresol	4	1
m-Cresol	5	<1
Syringol	26	7
Methyl Syringol	1	<1
Syringol Gentiobioside	10	3
Methylsyringol Gentiobioside	1	<1
Phenol Rutinoside	106	50
Cresol Rutinoside	71	34
Guaiacol Rutinoside	90	45
Methylguaiacol Rutinoside	49	20

The glycosides (Gentiobiosides and rutinosides) are the analyzable markers of the bound taint. The ARC process lowers their levels significantly at each pass through the process. *(As a benchmark, non-tainted oaked cabernet sauvignon shows the following peak baseline numbers as provided by the AWRI baseline survey for Australian Cabernet Sauvignon wines):*

Syringol Gentiobioside	4.5
Methylsyringol gentiobioside	1.1
Phenol Rutinoside	4
Cresol Rutinoside	4
Guaiacol Rutinoside	7
Methylguaiacol rutinoside	4

With the ARC Process, the wine undergoes an on-premise, three step procedure. To start the process, your wine goes into a membrane system, which separates the liquid into two parts, a *retentate* stream and a permeate stream. It is the permeate stream which contains both the bound and the free form of the smoke compounds. The permeate stream is then sent through an adsorption column, where the free form of the smoke aromatics are reduced. The same permeate stream then goes into a secondary treatment column, where the glycosides are reduced. Depending on the level of taint, our experts can recommend the number of passes which will give you the best results for your product. Wine with lesser taint may undergo fewer passes through the system, while wines with heavier taint may need up to four passes or more. Each client only need contract for the number of passes that suit the level of taint.

It must be noted however that there are hundreds of compounds related to smoke taint in wine. Analyzing for all of them is not practical. There are also desirable glycosides in wine that contribute to mouthfeel and flavor. We are unfortunately not able to target individual smoke compounds and both desirable and non-desirable compounds are reduced. Net result is that the more you process the wine, the more of a stripping affect will be noticeable and it might be necessary to “rebuild” the mid pallet of the wine.

We recommend that a comprehensive analysis, complete with the free and bound markers, is performed on the wine prior to treatment. VA Filtration USA is accepting samples for analysis which include 12 markers for smoke taint.

Capable of processing up to 1500 gallons per hour, VA Filtration has the bandwidth to process anywhere from one barrel to large amounts. Trial tests are available on amounts from one gallon up, but results are more conclusive the larger the trial sample, providing a great benchmark for testing.

**VA Filtration** is a mobile wine service and equipment manufacturing company, with patented procedures. VA Filtration specializes in all forms of membrane processing systems. Contact us to schedule a discrete discussion on how we can help you present your best wine.